Answers to the two Marcela's questions last Friday at the W&C:

1) What about the t'?

2) At Aspen theoreticians spoke about a W' with a mass around 400 GeV thus accessible at the Tevatron… dixit M.

Further discussions on these two points are very welcome (theorists interested?)

aurore@fnal.gov

Fourth Generation Top Quark

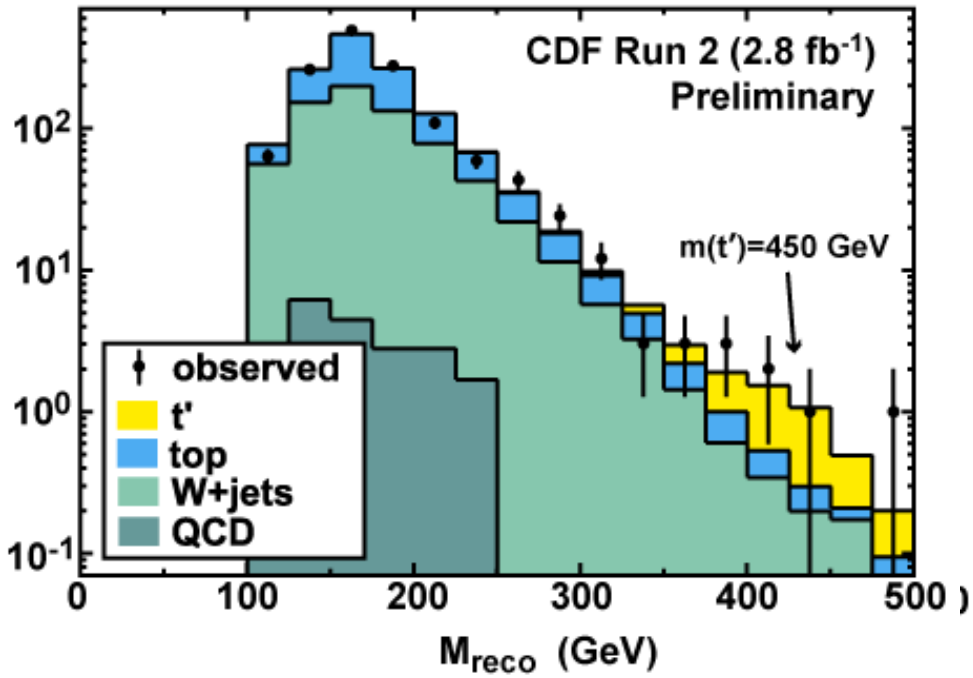
2.8 fb^{-1}

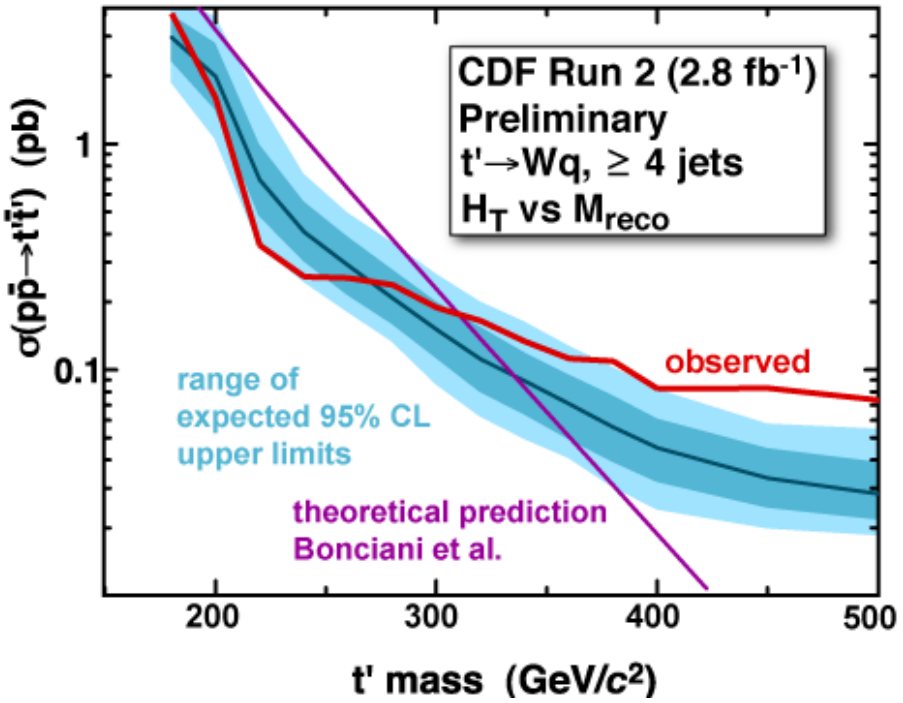
Slide: Courtesy Chris Hays

t' can lead to large β_s and D_0 mixing (Hou, Nagashima, and Soddu, PRD 76, 016004)

Search for t' in lepton + jets final state

Reconstruct hypothesized t' mass and search in plane of mass vs total transverse energy





1% consistency between data and SM at this mass

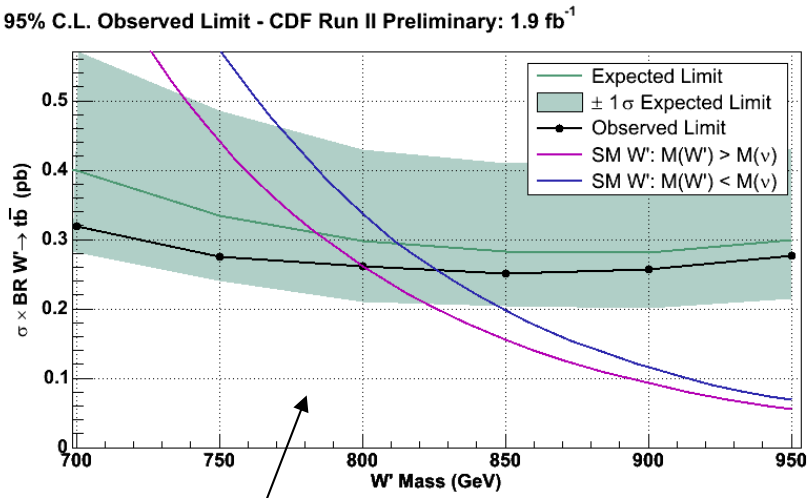
$m_{t'} > 311$ GeV

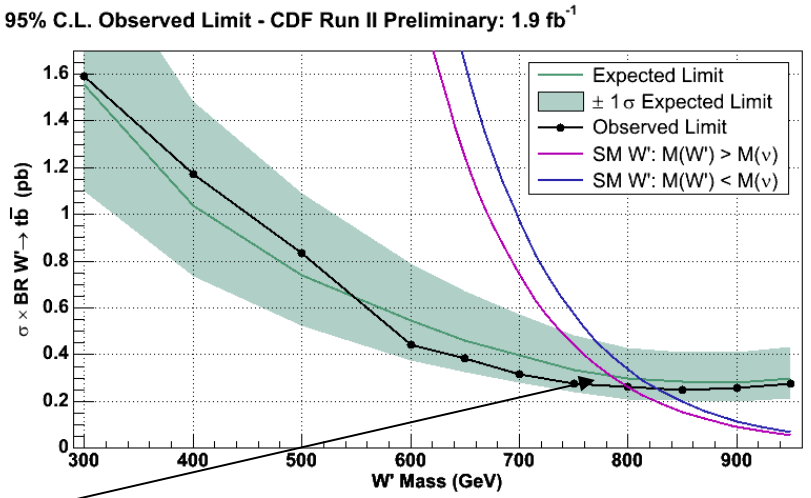
Marcela's question: What about a t' fourth quark

Aurore answered: it may explain a large βs value. Here a slide summarizing present CDF m(t') limit

Search for a W'-like resonances in tbbar decay channel @CDF

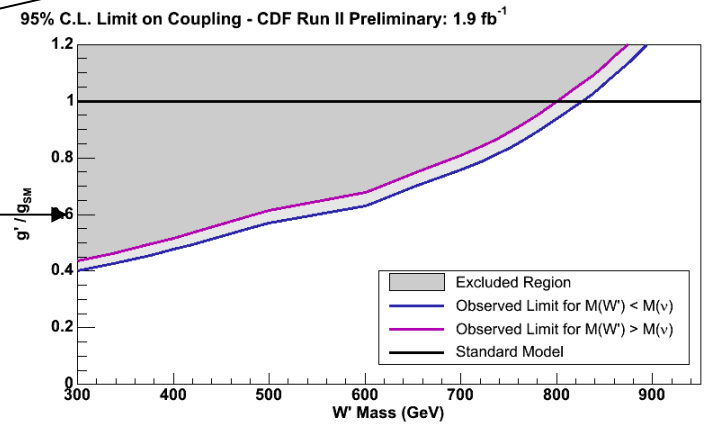
- Derived from the single top analysis, a sequential W' decaying into tbbar has been searched for in 1.9fb-1 of data at CDF.
- Upper limits for σ(ppbar→W') x BR (W'→t bbar) have been set as well as for the W' coupling to the fermions.
- A purely left-handed or purely right-handed W' is excluded below 800 GeV/c^2 at 95%CL and σxBR(tbbar) is smaller than 0.28pb for masses of W' above 800 GeV/c^2.
- Apparent couplings down to $0.4 g_{SM}$ are excluded for low W' mass.





Observed limit and closeup on M(W').

Observed limit on coupling strength



Further discussion with theorists are very welcome!